BELL & HOWELL MODELS 785, 785C,
785L, 785ST-4, 785X, 785-4TS

MODEL 785-4TS

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GENERAL INFORMATION

This manual covers the following Bell & Howell tape recorders: Models 785, 785C, 785L, 785ST-4, 785X, and 785-4TS.

The differences between these models are as follows: Model 785-4TS will record four tracks monaural or play back two or four track pre-recorded stereo tape; Model 785 is designed for 117 volt, 60 cycle AC operation; Model 785-C is designed for 117 volts, 50 to 60 cycle AC operation; Model 785-L is equipped with a 3-wire power cable and grounding type plug; Model 785-X is designed for 110 or 220 volts, 50 or 60 cycle AC.

All models will accept reels up to 7 inches in diameter. Each mode of operation is controlled by a pushbutton.

The tape speeds are 3 3/4 ips and 7 1/2 ips. Using a 1200 ft. reel of tape on four tracks, the playing or recording time at 3 3/4 ips is four hours; at 7 1/2 ips is two hours.

Connect the recorder to the power source specified for the model being used.

Supplied By:

Bell & Howell Co.
7125 North Kimball Avenue
Chicago 45, Illinois

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of CQ478

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FUNCTION OF CONTROLS

Off-Volume

Turning this control clockwise turns the recorder on. Further rotation increases the volume.

Tone

Rotating the control clockwise emphasizes the high frequencies (treble). Rotating the control counter-clockwise emphasizes the low frequencies (bass).

Monitor

To listen when a recording is being made, move the switch to the monitor position.

Channel Selector

The channel selector selects the channel to be used for recording or playing back a prerecorded tape.

Play

Places the recorder in the play mode of operation when depressed.

Rewind and Forward

Depressing the rewind button will rewind the

tape at a rapid speed. Depressing the forward button will advance the tape at a rapid speed.

Stop

Depressing this button will stop the transport mechanism when in any mode of operation. This button must be depressed when going from one mode to another.

Record

To record, depress the record button and while holding it down depress the play button. This prevents accidental erasure.

Pause

Sliding the button to the left will temporarily stop the mechanism without taking the recorder out of its mode of operation. Release the button to proceed.

Speed Change

Pull the speed change shaft up for 3 3/4 ips operation and down for 7 1/2 ips operation. Before operating the speed change shaft, make certain the stop button is depressed.

OPERATING INSTRUCTIONS

Threading the Tape

1. Depress the stop button.
2. Place a full reel of tape on left-hand spindle.
3. Place an empty reel on the right-hand spindle.
4. Unwind about two feet of tape from the full reel. Hold a section taut and insert it in the tape slot. Insert the free end into one of the slots in the empty reel and turn the empty reel by hand to secure the tape to it and to take up the slack.

Recording

1. Set the channel selector to the type of recording to be made.
2. Thread the tape.
3. Set the speed change shaft to the desired speed.
4. Plug the microphone into the microphone input jack to make a live recording or it may be placed in front of the loudspeaker of a radio, phonograph, or television set.
5. To make recordings from a radio, phonograph, or television set without getting extraneous noise in the recording, connect one end of a patch cord to the speaker terminals of a radio, phonograph, or television receiver. Plug the other end of the patch cord into the Radio-Phono input jack.
6. Turn the Off-Volume control on.

7. Depress the Record and Play buttons.

8. Slide the pause button to the left and hold while adjusting the recording level.

9. Place the Monitor switch in the Normal position.

Playing a Recording

1. Set the channel selector for the type tape being played.
2. Thread the tape.
3. Set the speed change shaft to the speed at which the recording was made.
4. Depress the Play button.
5. Adjust the volume and tone controls to the desired listening level.

Erasing

A tape is automatically erased when a new recording is made. To erase a tape without putting new material on it, run the tape through in the record mode with the volume control turned to its lowest position and remove all input connections.

Pause Lever

The Pause lever allows the operator to temporarily stop the recorder while recording without depressing the Stop button. The Pause lever can be used to obtain the proper volume level before making a recording.

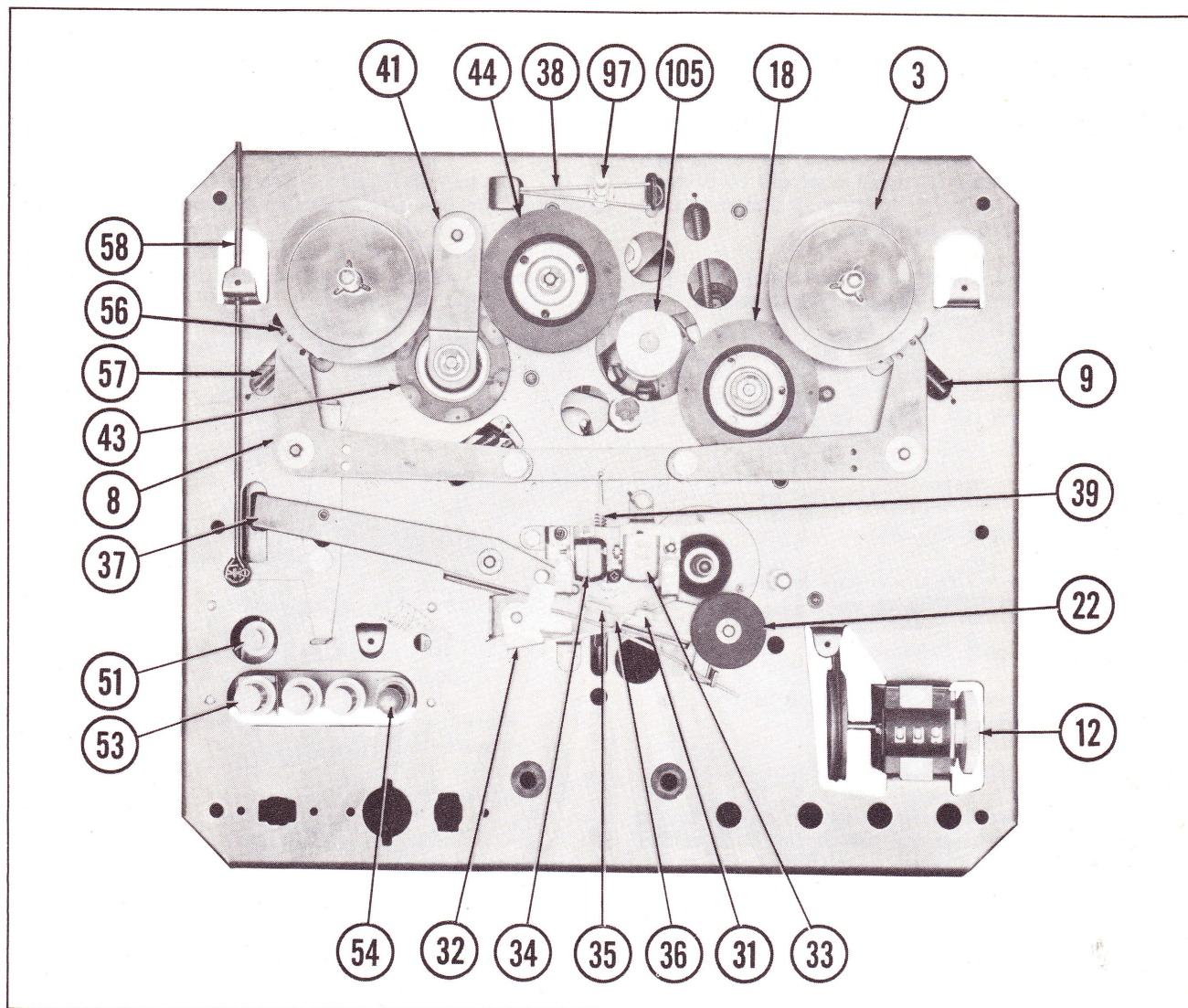


FIG.1 TOP VIEW OF MECHANISM WITH TOP PLATE REMOVED

BELL & HOWELL MODELS 785, 785C,
785L, 785ST-4, 785X, 785-4TS

Playing Dual-Track Tapes

1. Place the channel selector in the 1-4 position.
2. Thread the tape onto the recorder.
3. After the first track is played, take the full reel, turn it over and place it on the left spindle. Place the empty reel on the right spindle.
4. Rethread the tape, and the second track is ready to be played.
5. To play dual-track stereo, set the channel selector to the stereo position.

Playing 4-Track Tapes

1. Place the channel selector in the 1-4 position.
2. After the tape has been played or recorded through on one channel, turn the full reel over and place it on the left spindle and the empty reel on the right spindle.
3. Place the channel selector in the 3-2 position.
4. After track 2 has been played or recorded, turn

the full reel over and place on the left spindle and the empty reel on the right spindle. Play or record channel 3.

5. Place the channel selector in the 1-4 position.
6. Again place the full reel of tape on the left spindle and the empty reel on the right spindle. Play or record track 4.

Stereophonic Playback

1. Connect a high impedance input of an auxiliary amplifier to the stereo output jack at the right rear of the tape recorder chassis.
2. Place the channel selector in the stereo position.
3. Tracks 1 and 3 will play back with side number one of the reel up.
4. After the recording has been played through, turn the full reel over so the number two side will be up and place it on the left spindle.
5. With the number two side up, tracks 4 and 2 will be reproduced.

FOLDER 7

Rewind and Fast Forward

When a tape has been completely played or recorded, press the stop button to stop the recorder. To return the tape to the original supply reel, press the rewind button. To advance the tape rapidly, press the forward button. Be sure to take up any slack tape before operating either of these controls to prevent breaking the tape since it travels at a high rate of speed in these modes of operation.

CAUTION: Always stop the recorder completely when going from rewind or forward to another mode.

Program Indicator

This permits the logging of material as it is

recorded, or relocating previously logged material. The indicator should be set at "000" at start of the tape, then any desired point on the tape can be logged or relocated.

Public Address

To use the recorder as a public address system, plug a microphone into the microphone input jack and turn the power on. Remove all tape from the recorder. Set the monitor switch to the monitor position. Depress the record button and lock it in place by depressing the play button.

Keep the microphone well away from the speakers to prevent acoustic feed-back squeal.

DISASSEMBLY INSTRUCTIONS

To Remove Recorder from Case

1. Remove the two reel spindles held in place by Phillips head machine screws.
2. Remove the control knobs.
3. Remove the top plate (6) secured in place by 4 Phillips head machine screws.
4. Remove the plastic carrying handle.
5. Place the recorder in an upright position and remove the two plastic feet at the back of the case.
6. Remove the bottom grille.
7. Remove the two Phillips head screws accessible through the openings in the metal plastic handle channel support.
8. Carefully lift the recorder from the case.

To Remove the tape Transport Mechanism

1. Disconnect the drive motor (80).

2. Remove the input and output jacks, function selector switch, and monitor switch.
3. Disconnect the head leads.
4. Remove the six self-tapping screws holding transport to the speaker mounting plates.
5. Carefully lift the transport mechanism from the speaker mounting plates.

To Remove the Amplifier

1. Disconnect all plug-in leads.
2. Disconnect the slide switch wire link from the slide switch.
3. Unsolder the leads to the muting switch.
4. Remove the volume and tone control locking nuts.
5. Remove the self-tapping screws and washers along the top and bottom edge of the printed circuit board.
6. Carefully remove the amplifier assembly.

ADJUSTMENTS

Pressure Roller

1. Connect an inch-ounce scale to the end of pressure roller lever assembly (37).
2. Pull pressure roller free of capstan.
3. If reading is less than 16 in-oz., bend the long spring to increase the pressure.

Take Up Tension

1. Place an empty 7" reel on the take-up spindle.
2. Attach a short loop of string to the outside edge of the reel.
3. Connect a gram scale with a minimum reading of 60 grams to the string.

4. Hold the scale parallel to the recorder and at a right angle to the take-up spindle.
5. Depress the play button and note the reading.
6. If the reading is over or below 60 grams, remove the mechanism from the case as described under "Disassembly Instructions".
7. Remove the mechanism plate held in place by six Phillips head sheet metal screws.
8. Disengage the counter drive belt (65) from clutch pulley (71).
9. Remove the clutch pulley (71).
10. Slip the tension spring (69) and felt lining (67) off the take-up spindle.

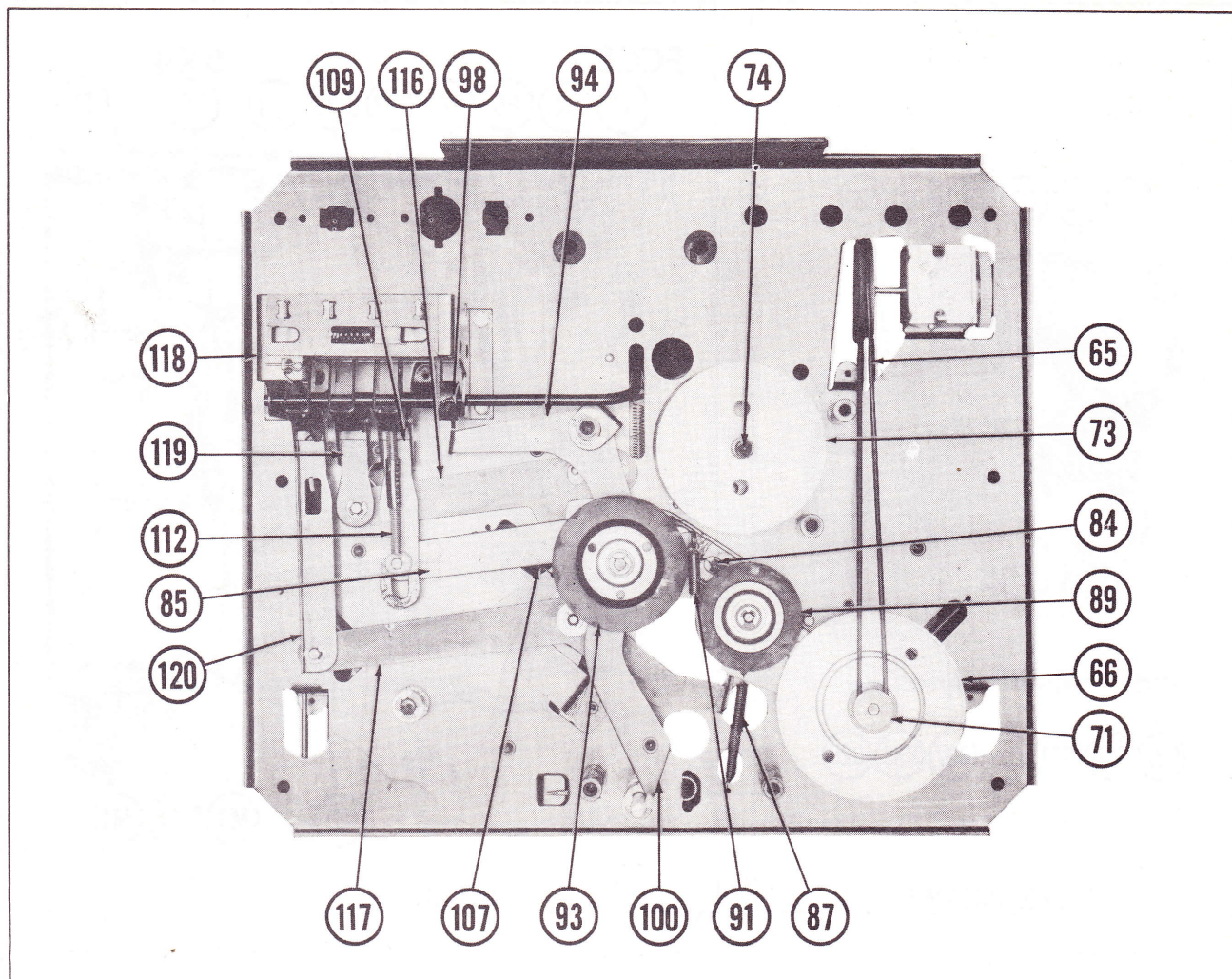


FIG.2 BOTTOM VIEW OF MECHANISM

11. If the reading was over 60 grams, saturate the felt lining (67) in a solution of one part turbine oil and 15 parts carbon tetrachloride. Allow to dry for 30 minutes before reassembling the clutch.
12. If reading was less than 30 grams, replace the tension spring and/or the felt lining.

Tape Reel Spindles

The supply and take-up spindles should be adjusted so the tape does not scrape on the edge of the reels. If they are worn, remove the spindles from flange shaft and add shim washers until the reels are aligned.

CLEANING

The play-record head (33) erase head (34), pressure roller (22), and the capstan should be cleaned periodically. Use a soft cloth and alcohol to clean these parts.

Play-Record Head

1. Thread a good prerecorded tape onto the recorder.
2. Place the recorder in the playback mode with normal volume.
3. Adjust the head (33) for up and down position by loosening the nuts in the side and sliding the head (33) up or down so the top of the pole piece is in line with the top of the tape.

LUBRICATION

The bearings of this recorder were lubricated before leaving the factory. No further lubrication will be necessary.

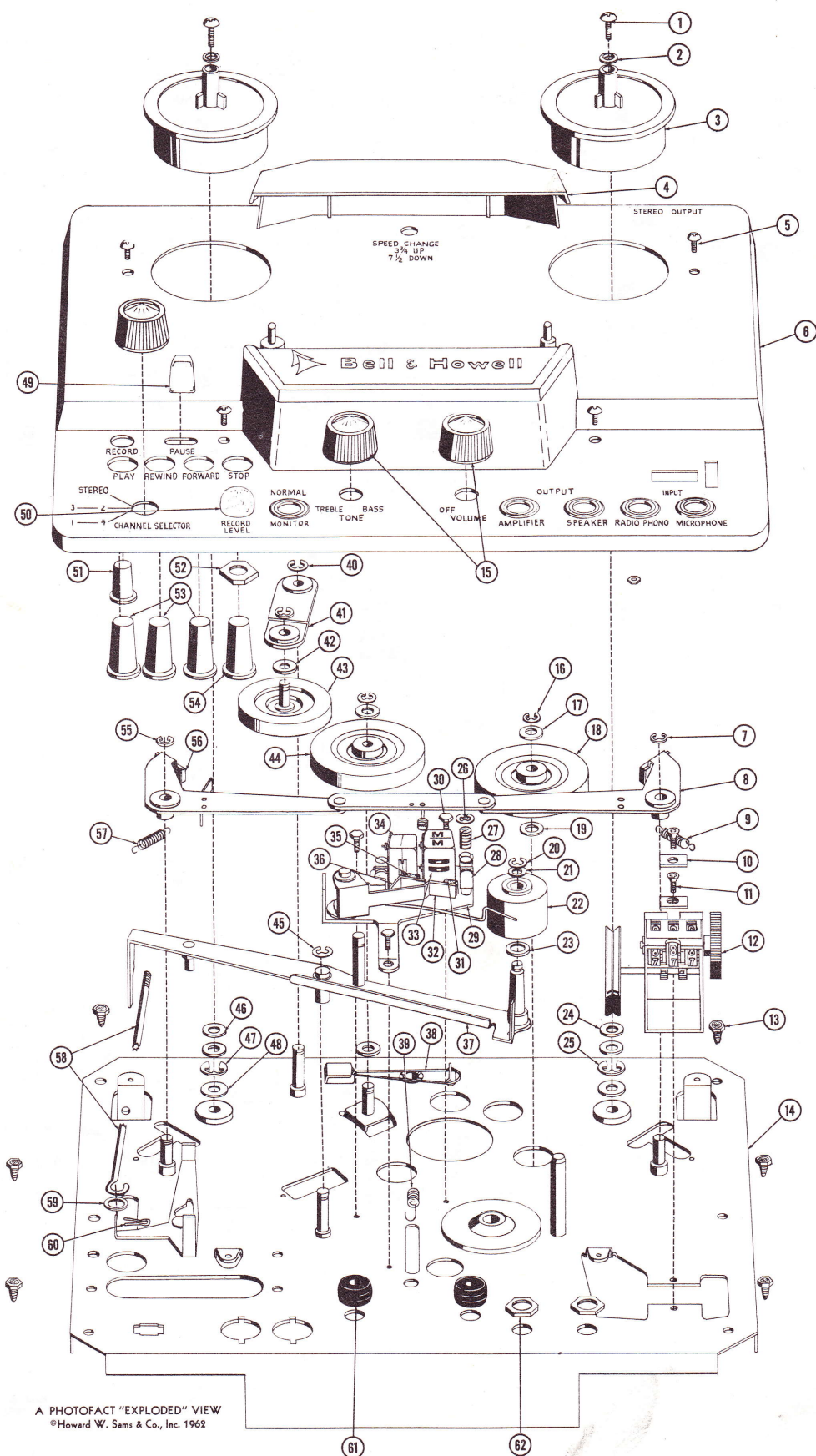
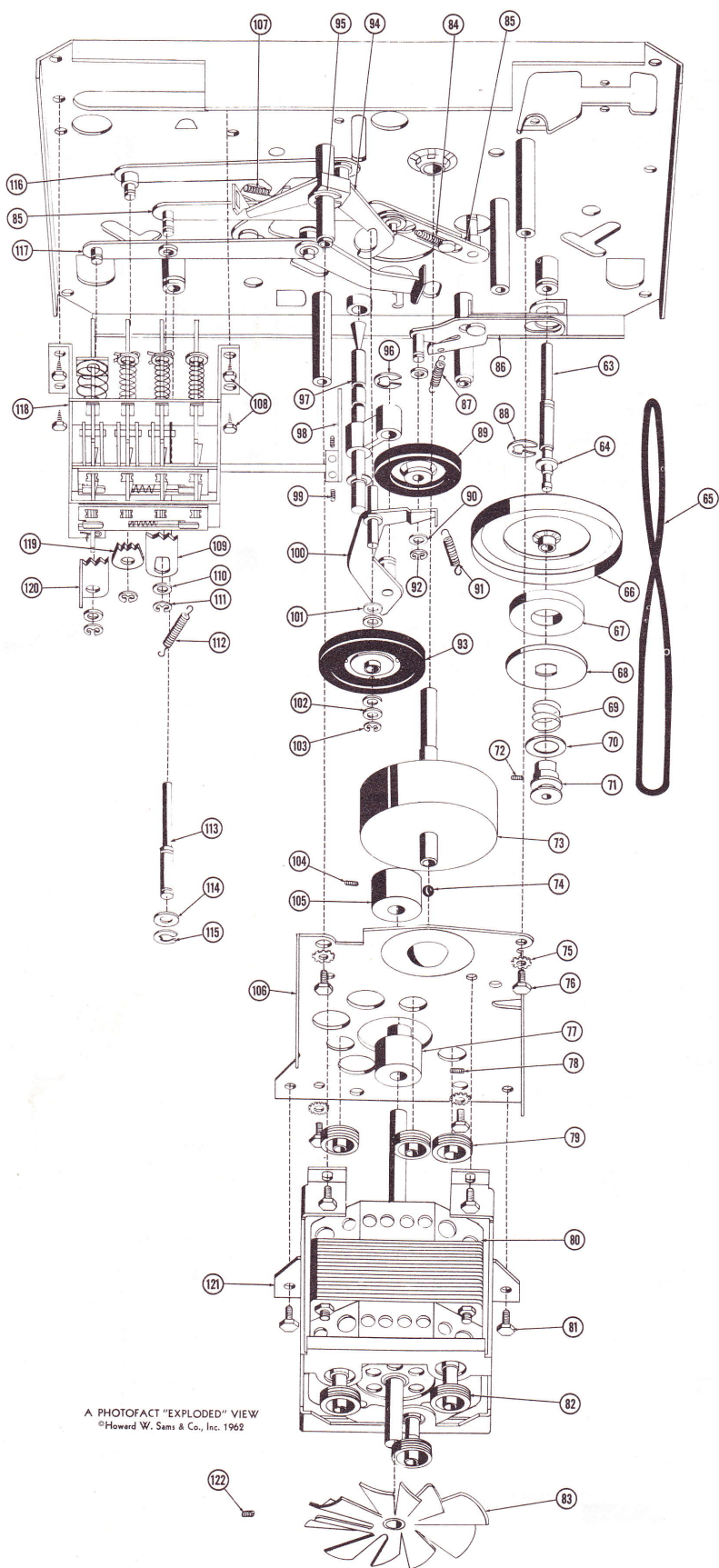
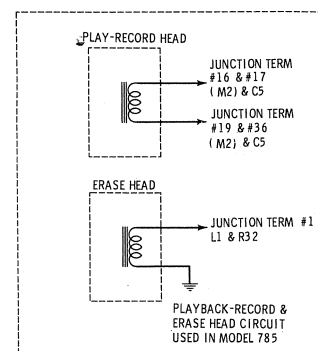
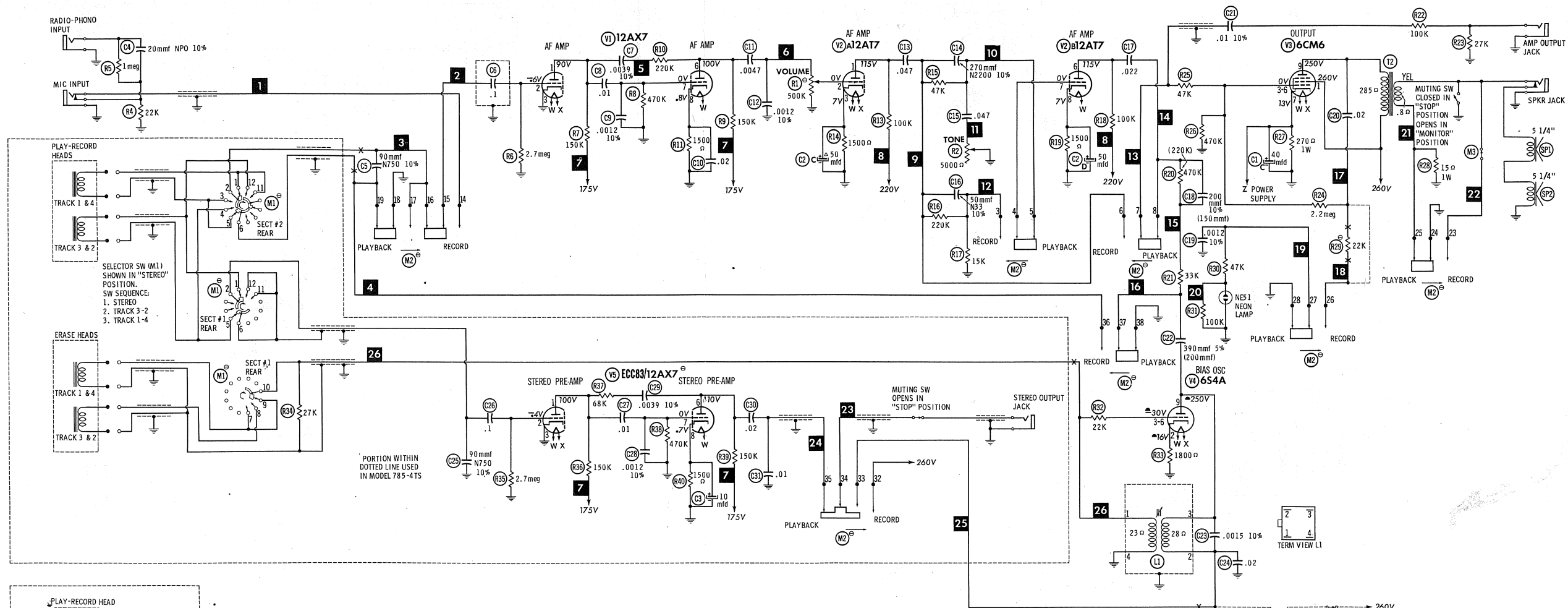


FIG.3A EXPLODED VIEW OF PARTS ABOVE PLATE ASSEMBLY



A PHOTOFACT "EXPLODED" VIEW
 ©Howard W. Sams & Co., Inc. 1962

FIG.3B EXPLODED VIEW OF PARTS BELOW PLATE ASSEMBLY



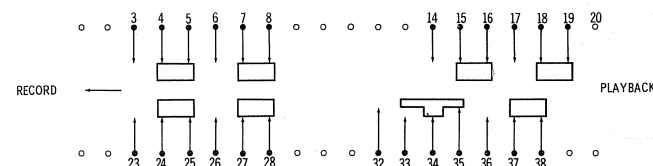
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**

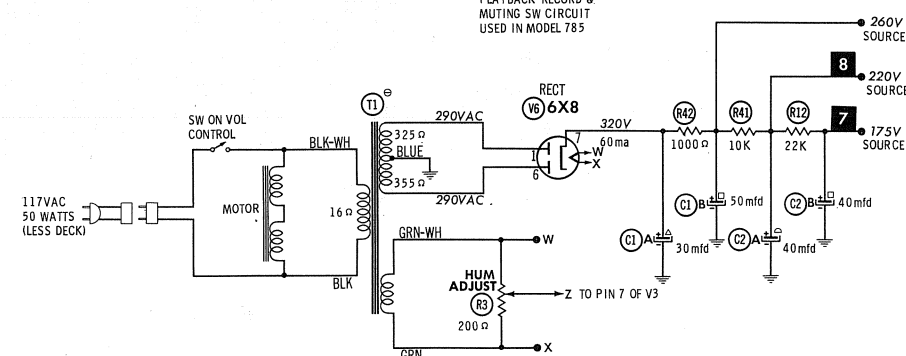
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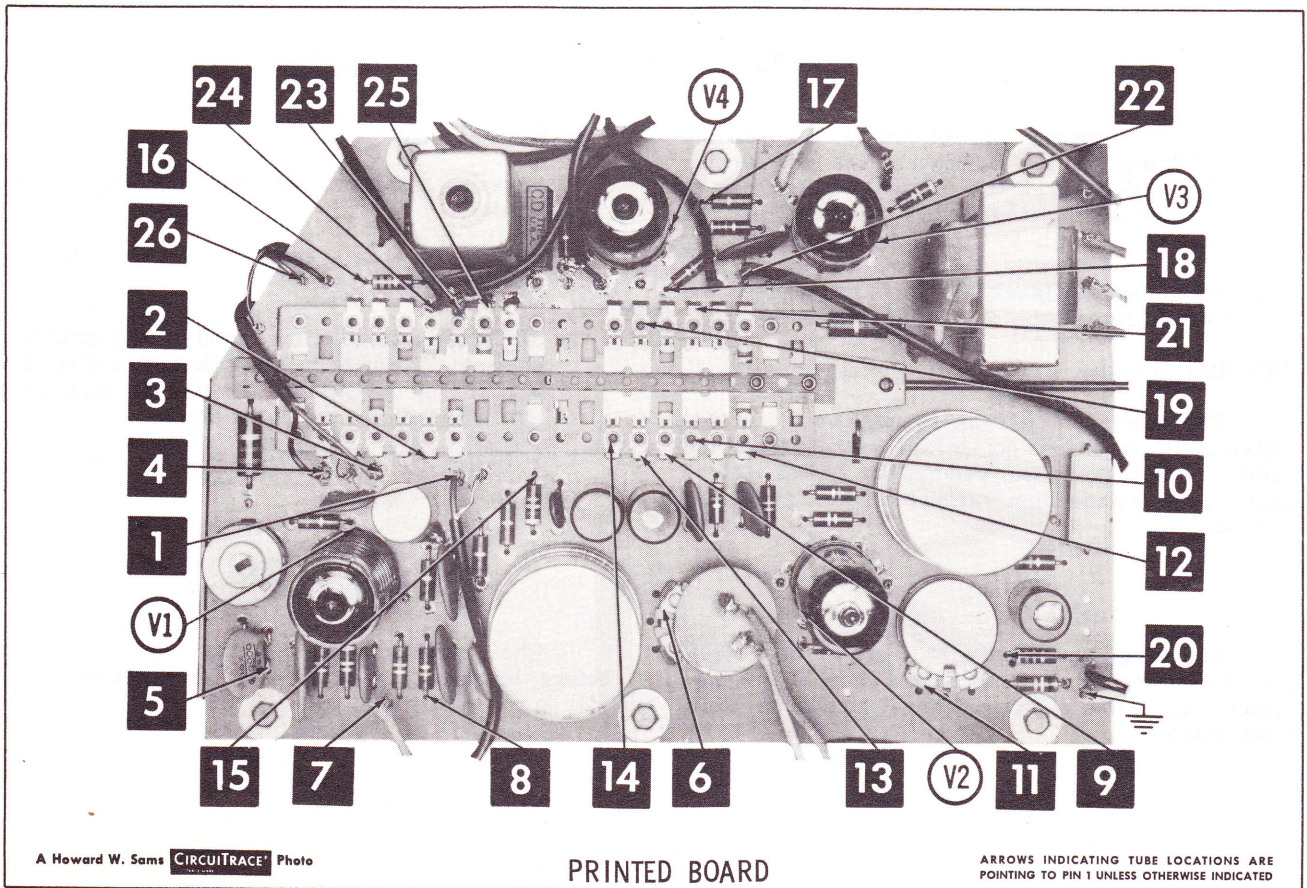
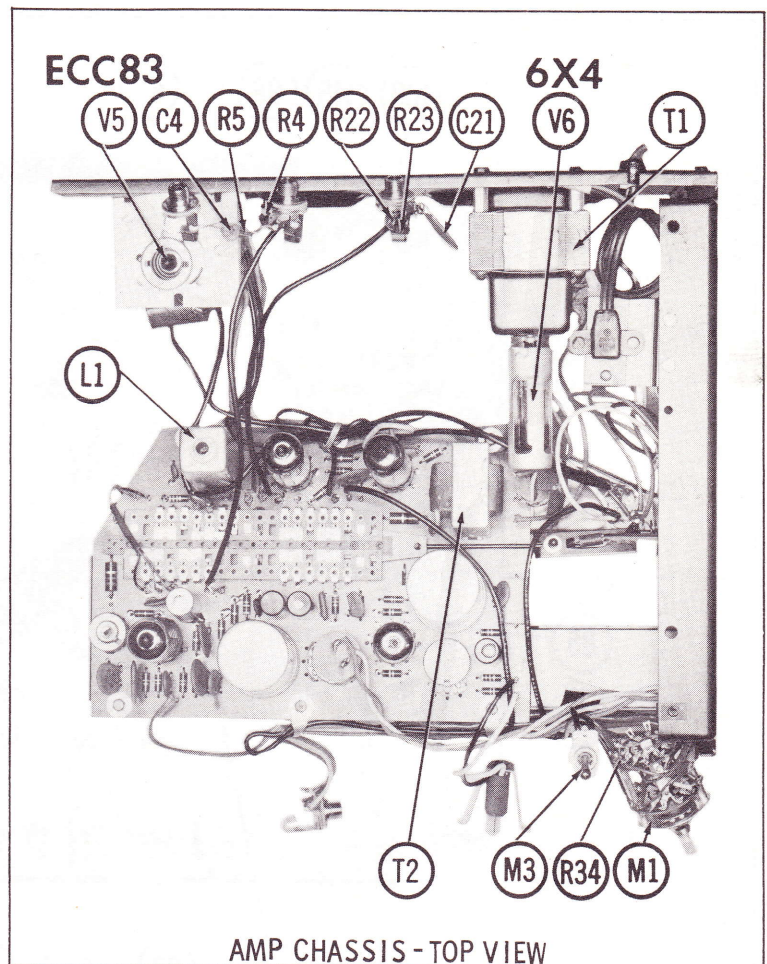
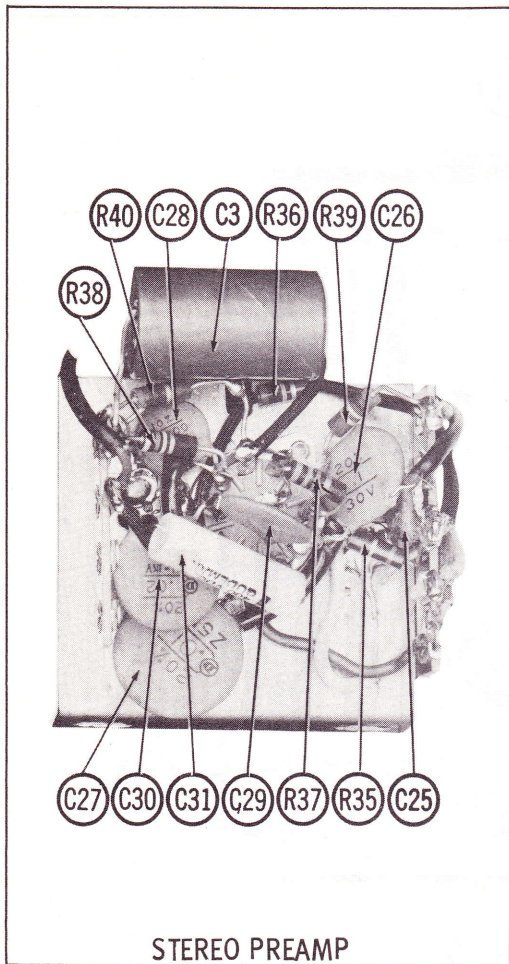
TERM VIEW RECORD-PLAYBACK SW (M2)

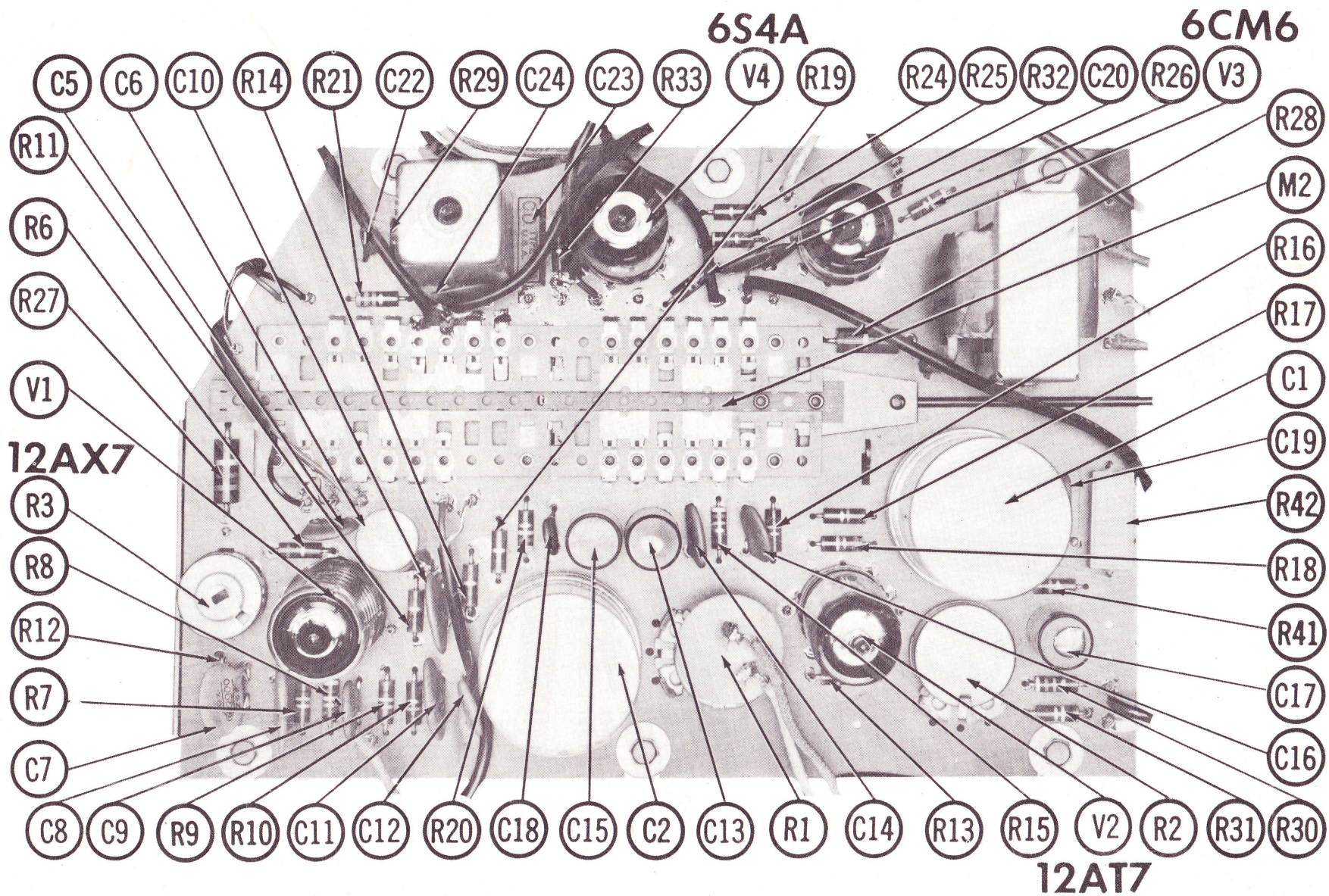
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	$\pm 180K$	2.7 meg	0 Ω	FIL	FIL	$\pm 180K$	470K	1500 Ω	FIL
V2	12AT7	$\pm 110K$	0 Ω	1500 Ω	FIL	FIL	$\pm 110K$	285K $\pm 15K$	1500 Ω	FIL
V3	6CM6	$\pm 1000 \Omega$	NC	260K $\pm 180K$	FIL	FIL	260K $\pm 180K$	270 Ω	NC	$\pm 1300 \Omega$
V4	6S4A	NC	1800 Ω	$\pm 22K$	FIL	FIL	NC	NC	NC	$\pm 1000 \Omega$
V5	12AX7	$\pm 180K$	2.7 meg	0 Ω	FIL	FIL	$\pm 180K$	470K	1500 Ω	FIL
V6	6X4	325 Ω	NC	FIL	FIL	NC	355 Ω	1 INF		

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE INDICATED
 † MEASURED FROM PIN 7 OF V6
 ‡ MEASURED IN "RECORD" POSITION
 § THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN CIRCUIT.



BELL & HOWELL MODELS 785, 785C, 785L, 785ST-4, 785X, 785-45T





ELECT. PARTS LIST AND DESCRIPTIONS

TUBES

GENERAL ELECTRIC			RAYTHEON			SYLVANIA		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	AF Amplifier	12AX7	V4	Bias Oscillator	654A			
V2	AF Amplifier	12AT7	V5	Stereo Preamp.	ECC83/12AX7	Note 1		
V3	Output	6CM6	V6	Rectifier	6X4			

Note 1. Used in Model 785-4TS only.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					
	CAP.	VOLT.	Bell & Howell PART No.	AEROVOX PART No.	CORNELL- DUBILIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	30	450	701800			XC3-39 †		
B	50	350						
C	40	25						
C2A	40	300	701681					PCLS-4560.7*
B	40	300						
C	50	25						
D	50	25						
C3	10	25	70658	PRSL250	BBR10-25	QT1-5	TC22	TD-10-25

† Use Printed Circuit Adapter Kit PMAI.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL- DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	20 NPO 10%	Note 1	NPO-DI 20	DTZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C5	90 N750 10%		N750-DI 100	TCN-91	C10Q1C	CCTN-101	CN7-310	10TCU-T10
C6	.1 200V							
C7	.0039 10%		DI-4000	DD-103	PM6D4	CCD-392	JL-239	10TS-D39
C8	.01		BPD-01	DD-122	BYA10SI	CCD-103	B-110	5HK-S10
C9	.0012 10%		DI-1200	DD-122	5R5D12	CCD-122	GP212	10TS-D12
C10	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C11	.0047		BPD-0047	DD-472	BYA10D47	CCD-472	B-247	5HK-D47
C12	.0012 10%		DI-1200	DD-122	5R5D12	CCD-122	GP212	10TS-D12
C13	.047 400V		P4151N-047	DD-503	BC6S47J	4DP-3-473	ACE-6147	4SE-S47
C14	270 N2200 10%	(150) †						
C15	.047 400V		P4151N-047	DD-503	BC6S47J	4DP-3-473	ACE-6147	4SE-S47
C16	50 N33 10%							
C17	.022 400V		P4151N-022	DD-203	BC6S22J	4DP-2-223	ACE-6122	4SE-S22
C18	200 10%		DI-200	DD-201	L10T2	CCD-201	GP320	10TS-T20
C19	.0012 10%		DI-1200	DD-122	5R5D12	CCD-122	GP212	10TS-D12
C20	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C21	.01 10%		DI-10000		DM6S1	CCD-103	GEM-1611	10TS-S10
C22	390 5%				5R5T39	CM-19B-391J	GP215	MS-339
C23	.0015 10%		1469-0015		5R5D15	CM-19B-152K	GP215	10TS-D15
C24	.02	(200) †	BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-D20
C25	90 N750 10%		N750-DI 100	TCN-91	C10Q91C	CCTN-101	CN7-310	10TCU-T10
C26	.1 30V			DA-104	H-05P1	IDP-2-104	TA-010	TG-P10
C27	.01		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C28	.0012 10%		DI-1200	DD-122	5R5D12	CCD-122	GP212	10TS-D12
C29	.0039 10%		DI-4000		PM6D4	CCD-392	JL-239	10TS-D39
C30	.02		BPD-02	DD-203	BYB6S2	CCD-203	B-120	5HK-S20
C31	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10

Note 1. Shielded Unit.

† Alternate Value.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST- ANCE	WATTS	Bell & Howell PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CYS-IRC PART No.	MALLORY PART No.	
RIA	500K	1/2	702008 ①					Volume
B	Switch							Power Off-On
R2	5000Ω	1/2	702007					Tone
R3	200Ω	1/2	701849					Hum Adjust

① Part #800749 used in Models 785, 785C, 785L, 785ST-4.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN TV PART No.	REMARKS			IRC PART No.	WORKMAN TV PART No.	REMARKS
R4	22K				R24	2.2meg			Note 1
R5	1meg				R25	47K			
R6	2.7meg				R26	470K			
R7	150K				R27	270Ω 1W			
R8	470K				R28	15Ω 1W			
R9	150K				R29	22K			
R10	220K				R30	47K			
R11	1500Ω				R31	100K			
R12	22K				R32	22K			
R13	100K				R33	1800Ω			
R14	1500Ω				R34	27K			
R15	47K				R35	2.7meg			
R16	220K				R36	150K			
R17	15K				R37	68K			
R18	100K				R38	470K			
R19	1500Ω				R39	150K			
R20	470K				R40	1500Ω			
R21	33K				R41	10K			
R22	100K				R42	1000Ω			
R23	27K								

* Alternate.

Note 1. Model 785-4TS only.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Bell & Howell PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	Workman TV PART No.	
L1	Osc.	800556					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA				NOTES
	PRI.	SEC. 1	SEC. 2	Bell & Howell PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T1	117V @ .47A	580VCT @ .060A	6.3V @ 2.6A	800453H				① Part #800442 used in Models 785, 785C, 785L, 785ST-4

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	Bell & Howell PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4500Ω	6-8Ω	800566					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Bell & Howell PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3-4Ω	800445	52A1	
SP2	5 1/4"	PM	3-4Ω	800446	52A1	

MISCELLANEOUS

ITEM No.	PART NAME	Bell & Howell PART No.	NOTES
M1	Switch	70655	Channel Selector (Rotary Wafer Type) Model 785-4TS only. Record-Playback (Slide Type) Model 785-4TS Record-Playback (Slide Type) Models 785, 785C, 785L, 785ST-4 Monitor (Toggle Type)
M2	Switch	072027	
	Switch	076373	
M3	Switch	70611	

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Phono Pick-up Arm Cable Use BELDEN No. 8430 (Two Conductor - Twisted)

TROUBLE CHART

Symptom	Cause	Remedy
Clicking noise when recorder is in fast forward or rewind.	1. Damaged counter.	1. Check springs in counter or lubricate.
Noisy pushbutton operation.	1. Lack of lubrication.	1. Lubricate the neoprene pads on push-button shafts.
Volume or tone controls bind and are difficult to turn.	1. Printed circuit board not centered. 2. Lack of lubrication or tacky condition of rubber grommets.	1. Reposition the board so the shafts are properly aligned in rubber grommets. 2. Check condition of rubber grommets and lubricate with silicon grease.
Speed change shaft binds.	1. Lack of lubrication.	1. Lubricate with a non-melting lubricant.
Take-up reel does not revolve in fast forward position.	1. Oil on rim of fast forward idler wheel (18). 2. Fast forward lever spring (112) off or broken. 3. Fast forward idler spring (84) off or broken.	1. Clean rim with a soft cloth moistened with alcohol. 2. Replace. 3. Replace.
Erratic drive on both speeds.	1. Drive pulley's (77) position incorrect.	1. The bottom of drive pulley (77) should be 7/32" from top of motor shell.
Take-up reel does not rotate in play or record position.	1. Take-up idler spring (87) off or broken. 2. Oil on rim of take-up idler (66). 3. Clutch slipping on clutch wheel.	1. Replace. 2. Clean with cloth moistened with alcohol. 3. Reposition clutch pulley (71) and tighten.
Counter does not operate.	1. Counter defective. 2. Counter belt (65) off or broken.	1. Replace. 2. Replace.
Supply reel does not rotate in rewind position.	1. Oil on rewind idler wheel (43) or rewind drive wheel (44). 2. Rewind idler spring (107) off or broken.	1. Clean with cloth moistened in alcohol. 2. Replace.
Pitch of sound is low from prerecorded tape.	1. Capstan drive mechanism slipping.	1. Remove top panel (6) and clean all driving surfaces with alcohol.
Reels do not stop when stop button is depressed.	1. Brake actuating spring (39) off or broken. 2. Brake lining worn. 3. Brake lever (98) loose on shaft.	1. Replace. 2. Replace. 3. Reposition brake lever (98) and tighten.
Wow or flutter	1. Motor shaft bent. 2. Idler wheel (93) worn. 3. Flywheel shaft (73) or bearings scored. 4. Pressure roller (22) binding on shaft. 5. Pressure pads (31) and (35) dirty. 6. Excessive takeup tension. 7. Improper pressure between capstan (73) and pressure roller (22).	1. Replace motor (80). 2. Replace idler wheel (93). 3. If shaft is lightly scored, polish with crocus cloth. If bearings are scored, replace. 4. Remove pressure roller (22) and clean bearing with alcohol. If shaft is scored, polish with crocus cloth. 5. Saturate with alcohol and brush contact surfaces in direction of tape travel. 6. See "Adjustments". 7. See "Adjustments".

BELL & HOWELL MODELS 785, 785C, 785L, 785ST-4, 785X, 785-4TS

FOLDER 7

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	700245	4-40 x 1/4 Truss Head Phillips Screw	61	701367	Rubber Grommets
2	700716	.116 x .281 x .020 Washer	62	800728	Jack Lock Nuts
3	800423	Reel Spindle	63	800461	Take-up Spindle Shaft
4	800795	Removable Cover	64	700797	.191 x 7/16 x .015 Fibre Washer
5	700245	4-40 x 1/4 Truss Head Screw	65*	800544*	*Counter Belt
6	076343	Top Plate Assembly	66	076196	Clutch Wheel Assembly
7	700890	"E" Ring, .187	67	800459	Clutch Lining
8	076190	Brake Assembly	68	800458	Clutch Plate
9	800536	Brake Spring	69	800460	Clutch Spring
10	800599	Counter Mounting Clips	70	800655	.484 x 3/4 x .010 Fibre Washer
11	700088	4-40 x 1/4 Flat Head Screw	71	800542	Clutch Pulley
12	076261	Counter Assembly	72	700424	Set Screw
13	700348	Hex Head Screws	73	076231	Capstan & Flywheel Assembly
14	076189	Mechanism Plate Ass'y.	74	800568	Ball Bearing, .1875 Dia.
15	701508	Volume, Tone & Channel Selector Knobs	75	700734	#10 Ext. Tooth Washer
16	700890	"E" Ring, .187	76	700230	#10-32 x 3/8 Hex. Head Screw
17	700797	.191 x 7/16 Fibre Washer	77	800462	Drive Pulley
18	076239	Fast Forward Idler Wheel	78	700420	#8-32 x 1/4 Set Screw
19	700797	.191 x 7/16 Fibre Washer	79	70671	Grommets
20	700890	"E" Ring, .187	80	70670	Motor-Fasco
21	700806	.191 x .375 x .015 Nylon Washer	81	700348	#10-1/4 Screw
22*	800714*	*Pressure Roller	82	70671	Grommets
23	700807	.257 x .437 x .015 Nylon Washer	83	701587	Fan
24	700797	.191 x 7/16 Fibre Washer	84	800548	Fast Forward Idler Spring
25	700889	"E" Ring, .250	85	076260	Forward Idler Lever Assembly
26	700897	"E" Ring	86	076192	Take-up Idler Lever Assembly
27	800540	Azimuth Spring	87		Take-up Idler Lever Spring
28		Tape Guide	88	700896	"E" Ring, .437
29	070202	Head Mtg. Bracket Assembly	89	076204	Take-up Assembly Idler Wheel
30	700343	Hex Head Screws	90	700797	Fibre Washer
31	800564	Pressure Pad	91	800545	Take-up Idler Spring
32	076274	Record & Play Arm & Pad Ass'y.	92	700890	"E" Ring, .187
33	70607	Record & Play Head	93	076180	Speed Change Idler Wheel
34	70608	Erase Head	94	800576	Retractor
35	800564	Pressure Pad	95	700894	"E" Ring, .375
36	076273	Erase Arm & Pad Assembly	96	700895	"E" Ring, .312
37	076185	Pressure Roller Lever Assembly	97	076199	Speed Change Shaft Assembly
38	800587	Speed Change Shaft Spring	98	800624	Brake Lever
39	800572	Brake Actuating Spring	99	700438	#6-32 x 3/16 Cone Pt. Set Screw
40	700890	"E" Ring, .187	100	076198	Speed Change Link Assembly
41	076191	Rewind Idler Arm Assembly	101	700806	.191 x .375 x .015 Nylon Washer
42	700797	.191 x 7/16 Fibre Washer	102	700806	.191 x .375 x .015 Nylon Washer
43	076183	Second Rewind Idler	103	700890	"E" Ring, .187
44	076180	Rewind Drive Idler Wheel	104	700420	#8 - 32 x 1/4 Set Screw
45	700890	"E" Ring, .187	105	800520	Forward & Rewind Pulley
46	700797	.191 x 7/16 Fibre Washer	106	070219	Motor Mtg. Plate Assembly
47	700889	"E" Ring, .250	107	800477	Rewind Idler Spring
48	700798	.265 x 1/2 x .030 Fibre Washer	108	700345	#10 x 1/4 Hex Head Screws
49	076265	Pause Knob	109	076200	Forward Lever Link Assembly
50	800574	Neon Plastic Cap	110	700712	.196 x 7/16 x .030 Steel Washer
51	800440	Record Button	111	700890	"E" Ring, .187
52	700477	9/16 - 27 Hex Nut	112	800547	Fast Forward Lever Spring
53	800439	Pushbutton	113	800479	Rewind Spindle Shaft
54	800441	Stop Button	114	700798	.265 x 1/2 Fibre Washer
55	700890	"E" Ring, .187	115	700889	"E" Ring, .250
56	800478	Brake Lining	116	076184	Rewind Lever Assembly
57	800536	Brake Spring	117	076186	Take-up Arm Assembly
58	800607	Remote Control Link	118	076263	Pushbutton Assembly
59	700797	.191 x 7/16 Fibre Washer	119	076202	Rewind Lever Link Assembly
60	700553	1/16 x 3/8 Cotter Pin	120	076201	Pressure Roller Link Assembly
			121	070219	Motor Mounting Plate
			122	700424	Set Screw

* Pressure Roller WALSCO Part No. 1488

* Counter Belt WALSCO Part No. 1410-54